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PROCEEDINGS

OF THE

Bournemouth Natural Science Society.

VOL. XXXI.

SESSION 1938-39.

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MUSEUM
NATURAL HISTORY

CONTENTS.

	PAGE
Introductory Note	5
Officers and Council, 1938-9	7
List of Members	9
Membership Application Form	19
Annual Meeting	20
Council's Report	22
Summary of Accounts	28
Financial Note	30
Form of Legacy	30
Library Report	31
Museum Report	31
Report of Zoological Section	32
Presidential Address	40
Paper on Heat and Electricity	45
Obituary Notice—R. Quick	50
Officers, 1939-40	51
Index	53

Introductory Note.

THE Bournemouth Natural Science Society was founded in 1903, being the successor to an older society which was formed in 1883 and dissolved in 1897. The early meetings of the Society were held in a room hired from time to time for the purpose, but the need for some fixed quarters was soon felt. To meet this need a small room was taken at 122 Old Christchurch Road, and, as this proved inadequate, in February, 1909, better accommodation was secured at Granville Chambers and retained for four years. In March, 1913, the Society took on lease from the Education Committee a large room on the ground floor of the Municipal College. In 1919 this also had to be given up, and the Society succeeded in acquiring a house of its own, 39 Christchurch Road. The formal opening was on February 7, 1920. In 1929 a Lecture Hall was added, and the ground floor of the old building reconstructed. The work was completed and the New Hall inaugurated on October 14, 1929.

The objects of the Society are declared by the second of its rules to be "the promotion of the study of Science in all its branches, by means of Lectures, Field Meetings, the Reading and Discussion of Papers, and the formation of Sections of its members devoted to any particular branch of the Society's work, and in any way that the Council of the Society shall deem advisable.

The Sections at present working are as follows:— **Archæological and Historical, Astronomical, Botanical, Entomological, Geographical, Geological, Microscopical, Photographical and Record, Physical, and Zoological.**

During the WINTER SESSION, from October to April, GENERAL and SECTIONAL MEETINGS are held, comprising Lectures and Demonstrations on subjects of scientific interest, illustrated by lantern slides, diagrams, specimens or experiments.

All meetings are open to all members of the Society.

Throughout the SUMMER SESSIONS, EXCURSIONS to places of interest in the neighbourhood are arranged and indoor or garden meetings occasionally held.

The management of the Society is vested in a Council, which is elected at the Annual General Meeting, held in October.

The Society possesses a Library available for the use of members. This is yearly becoming more extensive and valuable by the acquisition of standard text books and of books dealing with matters of local scientific interest. Books may, under certain conditions, be borrowed by members, and there is a Reading Room in which works of reference may be consulted.

The Society's collections of archæological, botanical, geological, zoological and other specimens are now arranged in the Museum. Articles on the collections were contributed to Vols. V. X. and XVII. of the Proceedings by Sir Daniel Morris, Mr. W. G. Wallace and Rev. C. O. S. Hatton respectively.

Members are elected by the Council and pay an annual subscription of £1 for full membership (admitting to all meetings and excursions for the year), a subscription of £2 covers four adult members of the same family residing in the same house.

A Monthly Notice, giving full details of all meetings, etc., is posted to every member before the beginning of each month, and a volume of Proceedings is published every year.

Application Forms for Membership, and further particulars, can be obtained from the

HON SECRETARY,

Bournemouth Natural Science Society,
39 Christchurch Road,
Bournemouth.

Bournemouth Natural Science Society.

OFFICERS AND COUNCIL, 1938-39.

President

PROF. G. D. HALE CARPENTER, M.B.E., D.M., F.L.S., F.Z.S., F.R.E.S.

Vice-Presidents

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G. E. J. CRALLAN, M.A., M.B., M.R.C.S.
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MISS MARCIA PENROSE, B.SC.
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HEYWOOD SUMNER, F.S.A.
J. R. WHITE, M.A.

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H. BURY, M.A., F.L.S., F.G.S.

Deputy-Chairman of Council

REV. F. C. R. JOURDAIN, M.A., F.Z.S., M.B.O.U.

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THE OFFICERS AND CHAIRMEN OF SECTIONS (ex-officio)

F. BROAD, F.S.I.
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MRS. JAMES
F. L. LOWTHER, B.A.
MISS M. PENROSE, B.SC.
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H. J. WADLOW
G. G. WREN

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Astronomical: INSTR.-CAPT. M. A. AINSLIE, R.N., M.A., F.R.A.S.
Botanical: L. BEECHING HALL, F.L.S.
Entomological: S. C. S. BROWN, L.D.S., R.C.S.
Geographical: W. J. WOODHOUSE, A.C.P.
Geological: HENRY BURY, M.A., F.L.S., F.G.S.
Microscopical: M. MCDOUGALL, M.B., B.S.
Photographical and Record: S. WHITAKER.
Physical: W. H. MARSH, B.SC.
Zoological: REV. F. C. R. JOURDAIN, M.A., F.Z.S., M.B.O.U.

Hon. Treasurer

A. J. PARSONS, M.R.S.T.

Secretaries

Hon. Secretary: W. J. WOODHOUSE, A.C.P., M.I.H.,
Assistant Secretary: MISS K. A. HUNKIN, B.A.

Hon. Librarian

S. WHITAKER.

Hon. Editor

J. R. White, M.A.

Hon. Curator

W. C. Simmons, B.Sc., A.R.C.S., F.G.S.

Hon. Auditors

F. Broad, F.S.I., J. C. Woods.

Bankers

National Provincial Bank of England, Bournemouth.

List of Members.

Revised to 11th November, 1939.

* Honorary Members. † Past Presidents.
o Original Members. l Life Members.
g Morris Gold Medallist. a Associate Members.

The year of election is given before the name of each member.

A

1932	Abbott, A. H.	Portman Cottage, 755 Christchurch Road
1932	Abbott, Mrs.	,, ,, ,,
1931	Adams, V. J.	7 Holdenhurst Road
1927	Adkins, H.	Glenavon, 107 Alumhurst Road
1935	Ainslie, Instr.-Capt. M. A., R.N., B.A., F.R.A.S.	Grenville, Talbot Drive, Wallisdown
1923	Anderson, Mrs. M.	Ranfurly, 18 Dean Park Road
1933	Andrews, Rev. P. T., M.A.	Foxwold, 34 Belle Vue Road, Southbourne
1937	Ansell, Miss E. M.	53 St. Catherine's Road, Southbourne
1933	Anthony, Miss C. H.	14 Iddesleigh Road
1937	Asquith, Miss K.	2 Warwick Court, Hawkwood Road, Boscombe

B

1937	Bacon, Capt. F.	Hadham House, Haig Avenue, Canford Cliffs
1939	Bailey, E.	A22, San Remo Towers, Boscombe
1937	Baker, C. A., M.I.E.E.	Clieveden, 36 The Avenue, Branksome Park
1937	Baker, Mrs. L. M.	,, ,, ,,
1936	Baker, Miss M. E.	3 Penrith Road, Boscombe
1936	Banham, Miss	Southernhay, Cambridge Road
1930	Banks, R. McLachlan, M.B., C.M., D.P.H.	35 Norwich Avenue
1935	Banks, Mrs.	,, ,,
1912	aBarraclough, A., M.A., F.R.G.S.	93 East Avenue
1936	Barran, Sir Rowland	Rockstead, West Overcliff Drive
1927	Bater, G. W., B.A.	22 Dingle Road
1939	Bates, T. W.	35 Talbot Avenue
1939	Bates, Mrs. F.	,,
1931	Beckett, S. J.	Pineville Hotel, West Cliff Gardens
1920	Bennett, Risdon, M.A.	Yew Tree Cottage, Broadstone
1939	Bennett, R. D.	A6, San Remo Towers, Boscombe
1939	Beresford, H. H.	The White House, Beach Road, Branksome Park
1937	Black, Miss O. M.	Broadlands, West Moors Road, Ferndown
1937	Bolt, Mrs. R. M.	Shenstone, Westerham Road, Westbourne
1920	Borret, Surg.-Capt. G. G., R.N.	Church Lane, Wool, Wareham
1938	Bottomley, Dr. F. C.	1 Beechwood Avenue, Boscombe
1929	Bourdass, Miss A.	7 Beaulieu Road
1929	Bourdass, Miss F.	,,

1920	ABourne, Miss C. M.	2 Alexandra Road, West Southbourne
1930*†	Bower, Prof. F. O., D.Sc., F.R.S	2 The Crescent, Ripon
1937	Braby, Newton	Purewell Hill, Somerford Road, Christchurch
1937	Braby, Mrs. E. M.	,, ,, ,,
1938	Brearley, Miss Ethel	5 Hengist Road, Boscombe
1936	Brewitt-Taylor, E. G.	10 Forest Road, Branksome Park
1922	Brewitt-Taylor, Mrs.	,, ,,
1931	Bright, Percy M., J.P.	Nethercourt, 60 Christchurch Road
1926	Broad, F., F.S.I.	Manton Villa, 2 Oxford Road
1928	Broad, Mrs.	,, ,,
1921	Bromley, Miss	81 Lansdowne Road
1937	Brown, Miss B. L.	Kismet, 28 Keswick Road, Boscombe
1917	Brown, Mrs. Edward	West Ridge, 50 Chessel Avenue
1937	Brown, S. C. S., L.D.S., R.C.S., H.D.D.	Kingsholme, 454 Christchurch Road, Boscombe
1905	*Brumell, G., A.R.I.B.A. Hon. Member 1933	Maori, 86 Richmond Park Avenue
1920	Brumell, Miss M.	,, ,, ,,
1920	Bryant, Miss M.	Sunnyhill, Hampden Lane, W. Southbourne
1936	Buchanan, Miss M.	27 Cavendish Road
1929	Buckingham, H.	Bourne Hall Hotel
1939	Buckingham, Miss D. G.	,, ,,
1937	Bunce, Miss A.	25 Parkstone Avenue, Parkstone
1937	Bunce, Miss F.	,, ,,
1929	Burge, J. T.	Glenhurst, Braeside Road, West Moors
1934	Burroughs, Mrs. I. F.	High Bank, Braidley Road
1937	Burrow, Mrs. D. M., B.Sc., PH.D.	107 Alumhurst Road
1922	Burton, E. St. J., F.G.S., F.R.S.A.	St. Anne's, Seaward Avenue, Barton-on-Sea
1922	†Bury, Henry, M.A., F.L.S., F.G.S.	The Gate House, 17 Alumdale Road
1930	Bury, Mrs.	,, ,, ,,
1930	Bury, Miss G. E.	,, ,, ,,
1930	Bury, Miss G. J.	,, ,, ,,
1937	Butt, Miss E. A.	Eastwood, 7 St. Winifred's Road
1933	Byard, A. G.	2 Alton Chambers, Church Road, Parkstone

C

1928	LCalkin, J. B., M.A.	Wychwood School
1934	†Cameron, J., M.D., D.Sc.	Balmashanner, Grove Road
1934	Cameron, Mrs. J., J.P.	,, ,,
1919	Cardew, R. K., B.A.	Stafford Lodge, 26 Dean Park Road
1939*†	Carpenter, Sir Harold, M.A., D.Sc., F.R.S.	30 Murray Road, Wimbledon, S.W.19
1939*†	Carpenter, Prof. G. D. Hale, M.B.E., D.M., F.L.S., F.Z.S.	Penguelle, Cumnor Hill, Oxford
1932	Chambers, W. H.	14 Douglas Road, Southbourne
1938	Child, Dr. F.	58 Bath Hill Court
1912	AChilver, Miss K. M.	2 Shaftesbury Road
1931	Clark, Miss K. E.	15a St. Mary's Road
1936	Clarke, Miss Bertha, M.A.	64a Parkwood Road, Boscombe
1927	*Clay, R. C. C., M.D., F.S.A.	The Manor House, Fovant, Wilts
1939	Clegg, A. L., M.A., B.C.L.	16 St. Alban's Crescent
1933	Collings, T. G.	54 Parkwood Road, Boscombe
1928	Constantine, M. H.	Brendon, Nairn Road
1935	Cookes, Mrs. L.	Oriel Haven, Victoria Avenue, Winton
1926	Cooper, H. A.	25 Talbot Avenue
1926	LCooper, J. S.	The Little Red House, Colehill, Wimborne
1938	Cradick, G.	Caer Urfa, 38 Langdon Road, Parkstone

1903†o	Crallan, G. E. J., M.A., M.B., M.R.C.S.	Country House Hotel, Crowborough, Sussex
1922	Crallan, Mrs.	,, ,, ,,
1920	Cressey, Miss H.	34a Florence Road, Boscombe
1931	Crocker, Mrs. Walter	Highridge, Ferndown
1939	Crooks, C. Macalister	4 Branksome Wood Road
1935	Cross, Miss F. C.	59 Strouden Avenue
1934	Croucher, Miss J. M.	Little Stanpit, Christchurch
1937	Cuningham, Miss D.	Lissara, Barrs Avenue, New Milton
1931	Curgenven, Miss A. J.	6 Suffolk Road
1922	Curme, Miss M. E.	65 Lansdowne Road
1928	Curtis, E. A., L.D.S.	Holm Dene, Poole Road
1928	Curtis, Mrs.	,, ,,
1928	Curtis, E. J. B., L.D.S.	,, ,,
1903*o	Curtis, W. Parkinson, F.E.S. Hon. Member 1922	17 Christchurch Road

D

1927	Dacombe, J. M. J.	Gosfield Cottage, Winkton, Christchurch
1933	Daimpré, Rev. I. D. D.	St. Mary's Vicarage, Morden, Wareham
1935	Daimpré, Mrs. G. H.	,, ,, ,,
1938	Davies, C. W., M.R.C.S., L.R.C.P.	33 Portchester Road
1938	Davies, Mrs. F. E.	,, ,,
1938	Davies, Miss F. B.	,, ,,
1932	Davy, Miss M.	The White Cottage, Newstead Road, Southbourne
1937	Dawes, Mrs. F. E.	24 Parkwood Road, Boscombe
1930	de Castro, H.	Yarlington, Springdale Avenue, Broadstone
1933	de Castro, Mrs.	,, ,, ,,
1936	Denton, Miss E.	3 Penrith Road, Boscombe
1935	Derry, Mrs. E. H.	Charnwood, Belle Vue Road. Southbourne
1910	Dodshon, E., LL.B.	124 Old Christchurch Road
1928	Drew, Lt.-Col. C. D., D.S.O., F.S.A.	c/o Dorset County Museum, Dorchester
1925	Druitt, Miss C. M.	99 Lowther Road
1925	Druitt, Miss C. S.	,, ,,
1928	Dundee, Col. W. J., C.I.E., R.E., F.R.G.S.	38 Portchester Road
1926	Dundee, Mrs.	,, ,,
1921	Dunn-Gardner, R. C.	3 Stanhope Gardens, S.W.7

E

1936	Edwards, Charles, M.D.	Lyndon Lodge, 51b Christchurch Road
1936	Edwards, Mrs. H.	,, ,, ,,
1935	Elgar, Rev. A. J., F.Z.S.	Forest House, 1 Grove Road
1935	Elgar, Mrs. E. M. K., F.R.G.S.	,, ,,
1935	Elgar, Hugh	,, ,,
1935	Elgar, Ronald	,, ,,
1922	Ellis, Mrs.	10 Forest Road, Branksome Park
1922	Ellis, Miss W. M.	,, ,, ,,
1937	Evans, John, M.R.C.S., L.R.C.P.	South View, Vectis Road, Barton-on-Sea
1936	Evans, Mrs. S. F.	Bloomfield, 19 Burton Road, Branksome Park
1927	Exon, C., M.A.	12 Douglas Road, Southbourne

F

1919	Farmar, Mrs. K. A.	Whitton Lodge, Stevenson Crescent, Parkstone
1922	Farmar, Miss E. A.	,, ,, ,, ,,
1937	Farmer, Miss A.	E 22 San Remo Towers, Boscombe
1927	Finlinson, F. J.	Daneshill, 85 Queen's Park Avenue
1934	Finnis, Miss F. M.	Riversdale, Poole Road, Wimborne
1903oA	Firbank, Miss, LL.A., A.C.P.	5 Buchanan Avenue
1938	Ford, J. C.	3 Harvey Road, Boscombe
1937	Forrest, Miss C. D.	Hiproof, Benellen Road
1925	Fountain, E. D., L.R.C.P., M.R.C.S.	Vron, 30 Mansfield Road, Parkstone
1933	Fountain, Mrs.	,, ,, ,,
1922	Fowler, A. R. W., B.A.	Ardmore Lodge, Ardmore Road, Parkstone
1919	Fowler, Miss M. L.	Lerryn, Chessel Avenue, Boscombe
1923	Fryer, Miss C. H.	Moulton, 46 Wellington Road
1928	Fulcher, L. W., B.SC.	60 Herberton Road

G

1937	Gallaher, Miss M. L.	Newbarne, Springdale Road, Broadstone
1934	Gandy, H. G., C.B.E., D.L., M.A.	Dormy Hotel, Ferndown
1926	Gardiner, H. L.	Granville Court Hotel, East Cliff
1939	Gardner, G. B., F.R.G.S.	Southridge, Highcliffe, Christchurch
1934	Geake, W. E.	6 Hathaway Road, Southbourne
1934	Geake, Mrs.	,, ,,
1934	Gibbons, Mrs. H. M.	High Mead, Moreton, Dorchester
1938	Gompel, Mrs. M. K.	Chestnut Lodge, Branksome Wood Road
1927	Gorton, B., M.R.C.V.S.	Treru, Duncliff Road, Southbourne
1936	Green, J. F. N., B.A., V.P.G.S.	Gabriel Court Hotel, Stoke Gabriel, South Devon
1936	Grieveson, Miss S.	24 Surrey Road
1917	Grindley, Miss E. J.	67 Princess Road

H

1931	Haines, Mrs. E. M.	Appleslade, Ringwood
1929 L	Haines, G. E.	602 Christchurch Road
1930	Haines, H. H., C.I.E., F.L.S.	Glyn Cogan, Berriew, Mont.
1931	Haines, Miss E. S.	,, ,,
1924	Hall, L. Beeching, F.L.S.	Bryn Aird, Blake Hill Crescent, Parkstone
1937	Hall, Mrs.	,, ,, ,,
1933	Harding, H. F.	Heather Glen, Western Road, Branksome Park
1934	Harding, Mrs.	,, ,, ,,
1934	Harding, G. F.	,, ,, ,,
1934	Harding, Miss G. J.	,, ,, ,,
1937	Harding, R.	3 Portchester Road
1913	Harris, Miss K.	Trescott Grange, Harvey Road, Boscombe
1912	Harrison, Henry	Beck Cottage, Grinton, Yorks
1932	Hatcher, F.	Hillcot, Constitution Hill, Parkstone
1932	*Hatton, Mrs.	Dutch House, Cliff Road, Barton-on-Sea
1920	Hawes, Miss	The Moorings, 27 Nelson Road
1917	Haydon, C. J.	Ben Veula, 29 West Cliff Road
1909	Hayes-Barratt, J.	16a St. Augustine's Road
1924	Hayes-Barratt, Mrs.	,, ,,
1924	Hayes-Barratt, Miss P. M.	,, ,,

1918	Haythorne, E. C. C.	14 St. Winifred's Road
1939	Heath, F. H.	Malaga, Mayfield Avenue, Parkstone
1934	Hellier, M., O.B.E.	Moorside, 20 Madeira Road
1932	Hemmy, A. S., B.A., M.SC.	Anarkali, 45 Elgin Road
1917	Henderson, Miss A. J.	Springbank, 22 Fox Street, Greenock
1928	Henderson, Major H. E.	Tall Trees, 21 Wayside Road, Southbourne
1928	Henderson, R. G., M.A., M.B., CH.B. (Aber.), F.R.C.S. (Edin.)	87a Southbourne Road
1932	Henderson, Mrs.	,, ,,
1931	Herklots, Mrs.	Highland House, Highland Road, Barton-on-Sea
1923	Hill, C. S.	Northfield, Chigwell Road
1930	Hilton-Johnson, Miss C.	12 Oban Road
1924	Hoare, Miss E.	Sea Gate, Cassel Avenue
1929	Hooper, Miss M. N.	Southland, Corfe Castle
1936	Howarth, Mrs. A., M.A.	385 Holdenhurst Road
1936	Hunkin, Miss K. A., B.A.	25 Foxholes Road, Southbourne
1927	Hunt, Mrs. F.	33 Stirling Road
1932	Hunt, Mrs. P.	Cone Cottage, 33 Twynham Road, Southbourne
1937	Hurdle, Mrs. E.	Hadley, 33 Grand Avenue, West Southbourne
1930	Hurt, Miss C. E. C. J.	Flat 31, Ingleby, 6 Wimborne Road

I

1925	Insch, J. M.	18 Beechwood Avenue
1925	Insch, Mrs.	,, ,,

J

1921	Jackson, Mrs. Gidlow	64 Portchester Road
1933	James, Mrs. M. G.	70 St. Alban's Avenue
1930	Jefferys, J. H.	Elpis, 43 Caledon Road, Parkstone
1936	Jervois, Mrs. E.	29 Chessel Avenue, Boscombe
1933	Johnson, Miss A. C.	Rivelin, 25 Avenue Road, Christchurch
1930	Jones, Miss A. Parnell	Menstone, Frankland Crescent, Parkstone
1933	Jones, Dr. Felix	7 Surrey Road
1930	Jones, Mrs. W.	1 Park Road
1927	†Jourdain, Rev. F. C. R., M.A., F.Z.S., M.B.O.U.	Whitekirk, 4 Belle Vue Road, Southbourne
1930	Jubb, Miss O.	12 Oban Road

K

1910	Kay, A. J.	5 Lonsdale Road
1937	Keay, D. D.	4 Berkeley Road, Winton
1930	†*Keeble, Sir F. W., K.B.E., D.SC., F.R.S.	Hammels, Boars Hill, Oxford
1929	Kendall, Mrs.	20 Serpentine Road, Poole
1928	Kendall, Miss G. J., A.R.C.M.	,, ,, ,,
1939	Kentish, Mrs. E. G.	Talbot Dene, 19 Rothesay Road
1935	Keutgen, E.	Anglo-Swiss Hotel, Gervis Road East
1937	Kidd, D. J.	33 Bath Hill Court

1927	Kilburn, Miss Alice M.	9 Glenmoor Road, Winton
1927	Kilburn, Miss Annie	,, ,,
1936	King, Mrs. A.	37 Linwood Road
1939	King, F. H.	Rexdene, Western Road, Branksome Park
1937	Kirkmann, Miss Maud	26a New Park Road
1937	Kohn, Mrs. Franklin	2 Hengist Road, Boscombe
1939	Kohn, Fritz	,, ,,
1939	Kohn, Miss Helene	,, ,,

L

1932	Laxon, E. A.	The Ramblers, Ashley, New Milton
1932	Laxon, Mrs.	,, ,, ,,
1933	Leach, W. J.	43 Browning Avenue, Boscombe
1938	Leather, Miss V. M.	Wyards, Studland, Dorset
1929	aLee, Miss L., LL.A., F.R.G.S., F.A.G.S.	69 Walpole Road
1922	Littleboy, Miss E. S.	2 Bodorgan Manor, 30 Bodorgan Road
1923	Littlewood, Eng.-Capt. A. W., R.N., O.B.E., Chevalier Legion of Honour.	28 Princess Road
1928	Longbottom, Mrs.	Haslemere, Penrith Road, Boscombe
1920	aLove, W. J. E.	17 Castlemain Avenue, West Southbourne
1939	Lowde, Miss E., B.A.	Kilmory, York Road, Broadstone
1932	Lowther, F. L., B.A.	Lonsdale, Mayfield Avenue, Parkstone
1934	aLowther, Miss D. M., B.SC.	,, ,, ,,
1903o	*Lupton, Miss	The Cottage, St. Johns Road, Sandown, I.W.
1910	Lyon, Mrs. C	Shalimar, Wilderton Road, Branksome Park

M

1908	Mackay, Miss	8 King's Park Road
1929	Mackay, Miss C. J.	,, ,,
1937	McArthur, Mrs. H. A.	Ravenscroft, Queen's Park Avenue
1909	McBean, Miss S.	29 Parkwood Road, Boscombe
1932	McDougall, M., M.B., B.S.	8 Dunkeld Road
1932	McDougall, Mrs.	,,
1935	McMichael, E.	1 Branksome Wood Mansions, Branksome Wood Road
1920	Male, H. C., M.D., M.R.C.S.	35 Irving Road, West Southbourne
1930†	*Malmesbury, The Rt. Hon. the Earl of, D.L., J.P.	Heron Court, Christchurch
1931	Marsh, W. H., B.SC.	Archways, 11 Mount Pleasant Lane, Ringwood
1936	Marsh, Miss M. F., B.SC.	,, ,, ,,
1913	Martin, Miss F. G.	34 Oxford Avenue, West Southbourne
1938	Masterman, Capt. J. S.	Flat 307, Hotel Burlington, Boscombe
1938	Masterman, Mrs. P.	,, ,, ,,
1921	Mate, Mrs. S. J.	10 Landseer Road
1930	Medwin, Miss G. L., M.B.E.	Alfreda, Broad Avenue, Castle Lane
1937	Mersen, Miss A. M.	5 Hengist Road, Boscombe
1929	Meyrick, Sir George, BART.	Hinton Admiral, Christchurch
1939	Middle, Miss A. M.	Tregenna, Castle Lane
1931	Miles, Miss V.	21 King's Park Road
1930	Miller, Dr. A. H.	Branksea Tower, Osborne Road, Parkstone
1926	Miller, Miss W. F., B.A.	Sunnycroft, 15 Penrith Road, Boscombe

1939	Millward, Mrs. M.	Uplands, Rowlands Hill, Wimborne
1937	Milne, R. M.	Radegund, Pennington, Lymington
1934	Mitchell, Miss E. A.	109 Edgehill Road
1937	Moore, E. J. F., M.D.	8 Grovely Road
1937	Moore, Mrs. L.	,,
1922	Moore, Major T. C., I.M.S.	Sundew, The Bench, Lyndhurst
1931	Morrell, C. Conyers, M.D., (Brux), L.R.C.S., L.R.C.P. (Edin.), D.P.H., F.R.I.P.H., F.R.A.S.	Mudeford House, Christchurch
1931	Morrell, Mrs. I. C., M.R.I.P.H.	,, ,,
1937	Morris, Brig.-Gen. G. M., C.B., D.S.O.	Dormy Hotel, Ferndown
1935	Morrison-Bell, Sir C. W. H., BART.	Glendon, Corfe Mullen, Wimborne
1935	Morrison-Bell, Lady	,, ,,
1935	Morrison-Bell, Miss D. F.	,, ,,
1935	Morrison-Bell, Miss V. F.	,, ,,
1908	Moss, Miss	The Grange, 52 Westby Road
1929	Mott, Lady	4 Dingle Road, Boscombe
1932	Mullins, Miss D. E. A.	Rosemaryne, 111 Edgehill Road
1937	Mundy, Montague	Culham, Glenferness Avenue
1936	Murdoch, Miss J. C.	3 Rotherfield Road
1935	Muspratt, C. K., B.A., F.R.G.S.	25 East Avenue
1935	Muspratt, Mrs.	,,

N

1939	Nevins, T. H. W.	5 Overbury Road, Parkstone
1939	Newsome, S. H.	85 Belle Vue Road, Southbourne
1939	Newsome, Mrs.	,, ,,
1938	Nix, Miss M. M.	66 Strouden Avenue

O

1929	Ogden, Miss E.	Southland, Corfe Castle
1910	LOke, A. W., B.A., LL.M., F.G.S., F.S.A.	32 Denmark Villas, Hove, Brighton
1922	Ousby-Trew, Miss	Overthorpe, Michelgrove Road, Boscombe
1929	Owen, Mrs.	59 Manor Road
1929	Owen, J. D.	Barnweill, 42 Strouden Avenue

P

1904	Painter, Mrs.	Cameron House, 36 Lansdowne Road
1928	Parry, Miss A. K.	Tilneyhirne, St. John's Road, Boscombe
1934	Parsons, A. J., M.R.S.T.	Parva, 32 Morrison Avenue, Westbourne
1936	Parsons, Mrs. A. C.	,, ,,, ,,
1939	Parsons, Miss D. M.	37 Seamoor Road, Bournemouth West
1938	Parsons, Miss S.	Bingley Moors, Queen's Park
1926	Paterson, Miss N.	Corfe Lodge, Parkstone
1924	Pattinson, Mrs.	59 Wellington Road
1916	Penrose, Mrs.	Woodbury, 9 Grove Road
1916	Penrose, Miss F.	,, ,,
1916	Penrose, Miss M., B.SC.	,, ,,
1929	Phelps, Mrs. J. V.	Woodbury, East Avenue
1939	Pickford, Mrs. E. M.	Mount Pleasant, Hampden Lane, Pokesdown

1934	Pickup, E. A.	24 East Avenue
1935	Pinder, T.	Dunster, Howard Road
1933	Platten, G.	Rotherfield Kennels, New Milton
1921	Pontifex, R. D., M.A.	Dalton House, 68 Christchurch Road
1939	Pope, Miss R. E.	Southernhay, Cambridge Road
1926	Potter, Rev. Prof. M. C., M.A., D.SC., F.L.S.	Corley Croft, York Avenue, New Milton
1930	Potter, Miss R. M.	144 Makepeace Mansions, Holly Lodge, Highgate, N.6
1930†	*Prain, Lt.-Col. Sir David, C.M.G., C.I.E., F.R.S.	The Well Farm, Warlingham, Surrey
1938	Price, Leopold	Oakwood, 18 Colville Road, Boscombe
1938	Price, Mrs. B. E.	,, ,, ,,

Q

1924	Quick, Mrs.	Tregenna, Castle Lane

R

1927	Raine, A. D.	Milverton, Lymington
1927	Raine, Mrs.	,, ,,
1912	*Rankin, W. Munn, M.SC. (Leeds), B.SC. (Lond.) Hon. Member 1920	Municipal College, Burnley, Lancs.
1917	Ranshaw, Miss E. M.	9 Marlborough Road
1918	Ratcliffe, Mrs.	Brooklands, 32 Branksome Wood Road
1936	Ray, W. T.	24 Alyth Road
1919	Rayner, Miss F.	35 East Avenue
1905	*Rayner, J. F., M.B. MYC. S.	Arlesey, Westerham, Kent
1935	Reid, A. H. G.	29 Newstead Road, Southbourne
1932	Reid, Mrs. F. E. A.	,, ,, ,,
1924	*Reid, Mrs. E. M., B.SC., F.L.S.	Pinewood, Milford-on-Sea
1938	Reid, J. W.	Westminster Hall, Beacon Road
1919	ARichards, Miss E. E., B.SC.	8 Overcliff Mansions, Manor Road
1928	Richards, Mrs. E. M.	Flat 51, Hampshire Court
1931	Richardson, Miss I. M.	87 Cranleigh Road
1936	Ringrose, B. J.	Farley, Harbridge, Ringwood
1936	Ringrose, Mrs.	,, ,, ,,
1926	Rix, Miss M. E. de B.	Wayside, Stourcliffe Avenue
1916	Roberts, H. Astley, B.A.	Shalvah, Wilfred Road, Boscombe
1938	Roberts, E.	33 Brackendale Road
1924	Robertson, W. G. A., M.D., D.SC., F.R.C.P., F.R.S. (Edin.), F.S.A. (Scot.)	St. Margaret's, St. Valerie Road
1934	Robertson, Mrs. M. K. A., M.D., L.R.C.P., F.R.S.G.S.	,, ,,
1929	Robinson, Miss M. H.	Byways, Chaddesley Glen, Canford Cliffs
1929	Robinson, Miss W. A.	,, ,, ,,
1923	Roden, Miss E. M.	12 Walpole Road, Boscombe
1938	Roden, Miss J. E.	,, ,, ,,
1936	Rooth, Mrs. A. V.	Holt Mount, Wimborne
1933	Ross, Mrs. H. G.	Dingwall, Priory View Road, Moordown
1916	Rothwell, Mrs.	Hotel Burlington, Boscombe
1935	Rush, Major J. S.	Somerset House, Bath Road
1935	Rush, Miss C. J.	20 Dunbar Road

S

1938	Saville, W. B.	Kingsdown, Teignmouth, South Devon
1931	Scudamore, C. E., B.A., L.R.C.P.	24 Hampshire Court
1914	Sharp, C.	Langdon, Parkstone
1919	Sharp, Miss E.	,, ,,
1935	Shaw-Wilson, Mrs. G.	Salterns Cottage, Lilliput, Parkstone
1933	Sheffield, Miss I. E.	177 Richmond Park Road
1937	Sherwood, Miss H.	264 Charminster Road
1938	Shirreff, Miss M.	123 Dean Road, Bitterne, Southampton
1932	Silvester, N. L., M.SC., F.A.MET.S.	East Cliff Hall
1937	Simmons, W. C., B.SC., A.R.C.S., F.G.S.	Trigonia, Spur Hill Avenue, Parkstone
1937	Simmons, Mrs. I. M.	,, ,, ,,
1920	Simpson, N. Douglas, M.A., F.L.S., F.R.M.S.	Maesbury, 3 Cavendish Road
1933	Slack, R. W.	40 Strouden Avenue
1914	Smyth, W. Johnson, M.D.	Killalief, 534 Holdenhurst Road
1915	Smythe, Mrs.	Willstead, 22 Cavendish Road
1920	Smythe, Miss D.	,, ,,
1916	Smythe, Miss K. M.	,, ,,
1938	Southorn, J. Hartley	Oakfield, Belmore Lane, Lymington
1938	Southorn, Mrs. E. M.	,, ,,
1938	Spearman, Dr. B., O.B.E., M.A., M.B., B.C.L.	34 Solent Road, Southbourne
1932	Spence, W. G.	The Shieling, Highlands Road, Barton-on-Sea
1932	Spence, Miss J. G.	,, ,, ,,
1909	Spencer, J. F.	Glenthorne, 73 Richmond Park Road
1935	Spring, F. G., N.D.A., U.D.A.	Aboyne, Spur Hill Avenue, Parkstone
1923	Stables, A. D.	Saxthorpe, St. Osmund's Road, Parkstone
1923	Stables, Mrs.	,, ,, ,, ,,
1923	Starr, Col. W. H., C.B., C.M.G., C.B.E.	4 Foxholes Road, Southbourne
1916	Stiff, S. J., B.SC.	Norden House, Corfe Castle
1916	Stiff, Mrs.	,, ,,
1916	Stiff, Miss M. J.	,, ,,
1933	Stockdale, Miss K. H.	72 St. Alban's Avenue
1924	A Story, F. N.	Storyland, Church Road, Southbourne
1938	Sugden, Miss A.	Suffolk Court, Suffolk Road
1918	G†*Sumner, Heywood, F.S.A.	Cuckoo Hill, South Gorley, Fordingbridge
1922	A Symes, H., M.A.	52 Lowther Road

T

1939	Taylor, J. W.	Upwood, Branksome Park
1928	Taylor, Mrs. R. A.	98 Palace Court Hotel, Westover Road
1937	Terrell, G. H.	53 Wentworth Avenue, Boscombe
1925	A Thomasson, Miss M. E.	37 Belvedere Road
1929	Thomson, A. G. A., M.A., M.B.	38 Wentworth Avenue, Boscombe
1932	Thomson, Mrs.	,, ,, ,,
1936	Trayfoot, Mrs. L. W.	25 Eaton Road, Branksome Park
1939	Turner, Mrs. J. E.	4 Bourne Court
1914	Twemlow, Miss E. E.	Devon Lodge, 83 Alumhurst Road

V

1918	Vorse, John	Leighurst, Walkford, Christchurch

W

1924	Wadlow, H. J.	The Gables, Queen's Grove, Parkstone
1921	Wales, Miss	The Nook, 4 Ormonde Road, Branksome Park
1921	Wales, Miss N.	,, ,, ,,
1913	Wallace, W. G.	Culver Croft, Hurstpierpoint, Sussex
1937	Walters, Miss E.	Uplands, Rowlands Hill, Wimborne
1936	Waltham, T. Ernest, F.R.H.S.	1st Floor Flat, 6 Grand Parade, Westbourne
1920	LWanstall, W. S.	Del Monte, 6 Roslin Road
1920	LWanstall, Mrs.	,, ,,
1939	Ward, Mrs. K. E.	6 Boscombe Cliff Road, Boscombe
1939	Ward, Miss M. F.	,, ,,
1939	Ward, Miss D. K.	,, ,,
1936	Ward, J. A., M.D.	1 Howard Road
1936	Warlow, Frank, L.D.S.	99 Southbourne Road, Southbourne
1936	Watkin, Ralph	Avila, Spur Hill Avenue, Parkstone
1930	Webb, Mrs. F. J.	Melbury, 18 Soberton Road
1936	Weekes, Mrs. M.	3 Rotherfield Road
1913	Wetherell, Miss M.	Triana, 31 Harvey Road, Boscombe
1920	Wetherell, Miss S.	,, ,, ,,
1918	Whitaker, S.	22 Somerset Road, Boscombe
1924	Whitaker, Miss E. M.	,, ,, ,,
1924	Whitaker, S. E., P.A.S.I.	22 Selwood Road, Addiscombe, Croydon
1920	White, J. R., M.A.	Whitecot, 15 Linwood Road
1931	AWhite, S. J.	7 Gilbert Road
1929	Whiteley, F. W.	The Fells, West Lulworth, Dorset
1937	Willans, Miss C. M.	E 22 San Remo Towers, Boscombe
1939	Williams, C., O.B.E., M.A.	The Close, Ringwood
1939	Wilson, J. Spetch, F.R.G.S.	Quetta, 33 Knyveton Road
1935	AWood, Miss E. B., B.SC.	4 New Park Road, West Southbourne
1903	oWoodhouse, W. J., A.C.P., M.I.H.	29 Twynham Road, Southbourne
1918	Woodhouse, Mrs.	,, ,, ,,
1923	Woodhouse, W. R.	,, ,, ,,
1923	Woodhouse, Miss M. M.	,, ,, ,,
1931	Woods, J. C.	Pine Croft, Rothesay Road
1931	Woods, Mrs.	,, ,,
1930	†*Woodward, Sir A. Smith, F.R.S., F.L.S., F.G.S.	Hill Place, Haywards Heath, Sussex
1932	Wren, G. G.	264 Charminster Road

Y

1939	Yates, Miss M. C.	Wychcote, Somerville Road
1935	Young, Rev. A. W.	542 Holdenhurst Road
1929	Young, Miss E.	11 Borthwick Road, Boscombe

To the Honorary Secretary,

Bournemouth Natural Science Society,

39, CHRISTCHURCH ROAD, BOURNEMOUTH.

Dear Sir,

I beg to propose that

M.....

(Please give Christian name in full, and state title—Mr., Mrs., Miss, etc., and any degrees or qualifications.)

Address.....

.....

**who is personally known to me*
**who has produced satisfactory credentials to me* *be elected an* **Ordinary* **Associate*
Member of the Society.

Date..... *Member's Signature*.....

I beg to second the above proposal

Date..... *Member's Signature*.....

*Delete words not applicable.

Annual Meeting, 1939.

The thirty-sixth Annual Meeting of the Bournemouth Natural Science Society was held on Saturday, October 28th, 1939, at 3 p.m. The Chairman of the Meeting was Mr. Henry Bury, Chairman of Council.

The Hon. Secretary, Mr. W. J. Woodhouse, read the Minutes of the previous Annual Meeting, and these were signed by the Chairman after being approved by the Meeting. The Hon. Secretary next read the Council's Report for the year ending September 30th, 1939, and the Hon. Treasurer, Mr. A. J. Parsons, read the Statement of Accounts for the year. A motion adopting the Report and the Statement was passed unanimously, being proposed by Mr. Hayes-Barratt, and seconded by Miss Twemlow.

Proposing a Vote of Thanks to the retiring President, Professor G. D. Hale Carpenter, M.B.E., D.M., F.L.S., the Rev. F. C. R. Jourdain said that the Society was keenly aware of the honour conferred upon it by such a distinguished entomologist and zoologist as Dr. Carpenter, in having consented to accept the Presidency, and having come to Bournemouth to deliver his presidential address. The Vote was seconded by Mr. Buckingham and passed with applause.

Next, the Chairman announced the name of the President for the ensuing year. In accordance with a long-established custom, the Presidents are chosen from members of the Society alternately with outside scientists. This year the Council had chosen Dr. W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P., as President. The announcement was enthusiastically received by the meeting.

The Election of Officers which followed was proposed by Mr. G. G. Wren, and seconded by Dr. Scudamore. The Officers elected were without exception those who had served in the previous year.

The Chairmen of Sections were also re-elected, on the motion of Mr. W. H. Chambers, seconded by Mr. McMichael. Mr. Chambers' expression of satisfaction with the valuable work done by the Chairmen of Sections was warmly applauded.

An addition to Rule 4, dealing with members' subscriptions, was passed, the Hon. Treasurer proposing the addition, and Miss Parnell Jones seconding it. This addition provides that "the Council shall have the power to reduce the amount payable for the remainder of the current financial year by ordinary members elected on or after April 1st."

Five members were elected to the Council by a ballot vote, their names being :—Mr. F. Broad, Mr. H. de Castro, Miss K. A. Hunkin, Miss M. Penrose, and Mr. G. G. Wren.

Mr. F. Broad and Mr. J. C. Woods, the Hon. Auditors, were re-elected on the proposal of Mr. Whitaker, seconded by Mrs. Rothwell.

The Chairman informed the meeting with deep regret of the death of Mr. R. Quick, who was Hon. Secretary of the Society from 1932-36.

In proposing a Vote of Thanks to the Chairman, Instr.-Capt. M. A. Ainslie said that the Society had cause to be extremely grateful to Mr. Bury for his able and efficient work as Chairman not only of the Annual Meeting, but also of the Council Meetings. This proposal was heartily endorsed by Dr. McDougall, and carried with acclamation by the Meeting.

Council's Report, 1939

THE Council has once again to report a decrease in the number of members of the Society. That number now stands at 463. Actually, the number of new members during the year September 30th, 1938, to September 30th, 1939, has been higher than in the preceding year, 57 having joined as against 43 in the year 1937-38. Resignations have numbered 41, and the loss by death has been 17. In addition to these figures, there has been a further decrease in membership, owing to the fact that a certain number of members have been removed from the list through continued non-payment of subscriptions. Honorary members number 16, life members 6, associate members 14, original members 5, and past presidents 12.

At the beginning of October the Society sustained a heavy loss in the death of the Hon. Treasurer, Mr. H. G. Trayfoot. Mr. Trayfoot, who was a very popular member of the Society, had only taken office three months before his death, but in that short time he had carried out the duties of his position with an ability which the Council valued highly. In November the Council was fortunate in securing the services of Mr. A. J. Parsons to fill the vacant office of Hon. Treasurer.

Dr. Cameron has been unfortunately obliged, through ill-health, to resign the Chairmanship of the Archæological and Historical Section, a position which he has filled with conspicuous success since 1934. His place has been taken by Mr. F. L. Lowther. In February, the Council accepted with regret the resignation of Professor B. Gorton from the Chairmanship of the Entomological Section. Mr. S. C. S. Brown was elected as his successor.

The Council has to record with deep regret the death of the following ladies and gentlemen, many of whom had been members of the Society for a considerable period, and had contributed greatly to the success of its work:—Mrs. A. E. Burrell, Mr. J. H. Clegg, Mr. T. C. Colledge, Dr. W. Gosse, Dr. S. Haylock, Rev. E. H. Horne, Mrs. Rees Howell, Mr. H. G. Humby, Mr F. W. Ibbett (Hon. Member, 1920), Rev. W. Looker, Miss E. McMichael, Mrs. Nichols, Dr. T. W. Pattinson, Mr. W. T. Redmayne, Mrs. E. M. Tucker, Mr. C. E. Tucker. The death occurred in May of Sir Frank Dyson, K.B.E., M.A., D.Sc., who was President of the Society in 1934-35.

The Presidential Address was given on Saturday, November 5th, by the President, Professor G. D. Hale Carpenter, M.B.E., F.L.S., who lectured to a crowded audience on "Mimicry in its Relation to Other Forms of Protective Coloration."

The Society's activities during the year have been, as usual, many and varied. There have been 16 general meetings and lectures, as well as the Annual General Meeting, and 4 general excursions. The number of sectional lectures and meetings has been 73, and of sectional excursions 37. Owing to the outbreak of war the motor-coach excursions in September had to be cancelled, but the Botanical rambles were carried out.

In June, Mr. G. G. Wren took a party of 25 members on an extremely enjoyable excursion to Cornwall and the Scilly Isles. The party left Bournemouth by motor-coach on June 19th, and returned on the 29th.

The Council has decided that lectures and excursions will be provided during the war as far as may be possible. It has unfortunately been found necessary to discontinue the teas after lectures, owing to gas rationing, and to the difficulties involved in darkening the museum and passages. In order to ensure that members attending will be able to reach home before dark, it has been decided to commence lectures at 2.30 p.m. after Summer Time ends on November 18th. The Council feels sure that it can count on members doing their utmost to support the Society during the difficult days which may lie ahead, and it will do all in its power to carry on the Society's work in as full a manner as possible.

The Council has allowed the A.R.P. authorities to use the lobby and the lecture hall as a Warden's Post, and members of the A.R.P. have been on duty there since the outbreak of war.

The Council wishes to thank all those who during the past year have presented gifts of various kinds to the Society. It also wishes to record its gratitude to the ladies of the Tea Committee, and to the lanternists, as well as to those members who helped in the distribution of the Proceedings.

General.

Lectures and Meetings.

(*Illustrated by Lantern Slides.)

1938.
Oct. 29.—Annual Meeting.
*Nov. 5.—Presidential Address.
Nov. 14.—Club Day.
Dec. 8.— ,,

1939.
Jan. 4.— ,,
*Jan. 7.—Children's At Home.
*Jan. 9.—The Great Lakes of Africa. W. C. Simmons.
*Jan. 28.—Vitamins and Health. W. G. A. Robertson.

Feb. 21.—Club Day.
Mar. 24.— ,,
Apr. 24.— ,,
May 22.— ,,
June 26.— ,,
July 10.— ,,
Aug. 28.— ,,
Sept. 18.— ,,
Oct. 2.— ,,

Excursions and their Leaders.

May 10.—Embley Park and Netley Abbey. S. Whitaker.
June 7.—The Meon Valley. S. Whitaker.
June 19.—West Cornwall and Scilly Isles. G. G. Wren.
July 27.—Winchester. S. Whitaker.

Sections.

Archæological and Historical Section.

Lectures and Meetings.

1938.
*Dec. 10.—Stonehenge and South Wales. W. E. Grimes.
1939.
*Feb. 11.—Guernsey. F. L. Lowther.
*Mar. 11.—Excavations at Colliton Park, 1938. C. D. Drew.
Mar. 22.—Witchcraft. C. E. Scudamore.
*Apr. 22.—Old Hampshire. S. Whitaker.
*Oct. 3.—Chronicles in Stone F. L. Lowther.

Excursions and their Leaders.

1938.
Nov. 10.—Churches and Walls of Wareham. R. K. Cardew.
1939.
Jan. 26.—Ancient Poole. F. L. Lowther.
Apr. 4.—Wimborne Minster and Canford Church. R. K. Cardew.
May 20.—Piddletrenthide, Puddletown and Affpuddle Churches.
F. L. Lowther
June 13.—Broad Chalk Valley. Messrs. De Castro and Lowther.
July 18.—Sedgemoor and Weston Zoyland. Messrs. de Castro and Lowther.
Aug. 2.—Horningsham and Longbridge Deverill.
Messrs. de Castro and Lowther

Astronomical Section.

Lectures and Meetings.

1938.
*Nov. 12.—The Amateur in Astronomy. M. A. Ainslie.
*Dec. 17.—Solar Radiation and Terrestrial Life. C. C. Morrell.
1939.
*Jan. 14.—Observatories. W. H. Steavenson.
Feb. 15.—Variable Stars beyond the Milky Way. J. T. Burge.
*Mar. 4.—Comets and Meteors. J. Blackhall.
*Apr. 15.—Some Facts about Stars. M. A. Ainslie.

Botanical Section.

Lectures and Meetings.

1938.

*Nov. 17.—Some Further Experiments with Hydrangeas. J. J. Manley.
*Dec. 12.—Alpine Flowers and Scenery. T. E. Waltham.

1939.

Jan. 23.—The Names of Plants. F. L. Lowther.
*Feb. 20.—Grasslands in Britain. R. K. Cardew.
*Mar. 25.—Plants as Civil Engineers. S. Mangham.

Excursions and their Leaders.

1939.

Apr. 13.—Cowgrove and Pamphill. R. K. Cardew.
Apr. 27.—Upton House Grounds. H. de Castro.
May 4.—Studland. H. J. Wadlow.
May 12.—Brockenhurst. F. L. Lowther.
May 16.—Coombe Keynes. R. K. Cardew.
May 23.—Sway. F. L. Lowther.
June 1.—Holmsley. H. J. Wadlow.
June 9.—Picket Post. R. K. Cardew.
June 12.—Wareham. R. K. Cardew.
June 20.—Worth Matravers. H. J. Wadlow.
June 27.—Dudsbury and Hampreston. R. K. Cardew.
July 4.—Spetisbury. R. K. Cardew.
July 11.—Cranborne Chase and Woodcutts. H de Castro.
July 20.—Corfe. H. J. Wadlow.
July 25.—Brockenhurst. R. M. Milne
Aug. 4.—Bloxworth to Bere Regis. F. L. Lowther.
Aug. 10.—Milford for Hurst Castle. S. Mangham.
Aug. 15.—Worth Matravers. H. J. Wadlow.
Aug. 22.—Wootton. M. C. Potter.
Aug. 29.—Morden Park. F. L. Lowther.
Sept. 5.—West Moors River. R. K. Cardew.
Sept. 12.—Slepe Heath. H. J. Wadlow.
Sept. 26.—Swanage. H. J. Wadlow.
Oct. 5.—Hinton Admiral. J. Vorse.
Oct. 10.—Brockenhurst (Fungus Foray). Messrs. Potter and Vorse.
Oct. 17.—Corfe. H. J. Wadlow.
Oct. 24.—Brockenhurst (Fungus Foray). Messrs. Potter and Vorse.

Entomological Section.

Lectures and Meetings.

1938.

Nov. 30.—Comparative Anatomy of Insects and Mammals. B. Gorton.

1939.

Jan. 18.—In Search of Micro-organisms. B. Gorton.
*Feb. 1.—Mysteries of the Hive. A. H. Mumford.
Mar. 31.—Some Problems of Insect Migration. S. C. S. Brown.
July 31.—Exhibition of Living Specimens. S. C. S. Brown.
Sept. 6.—Exhibition of Living Specimens. S. C. S. Brown

Geographical Section.

Lectures and Meetings.

1938.
*Nov. 19.—A Ramble round Norfolk. W. J. Woodhouse.
*Dec. 3.—Titicaea. H. P. Moon.

1939.
*Jan. 25.—All Night with London Transport. H. de Castro.
*Mar. 18.—Dorset To-day and Yesterday. H. de Casrto.

Excursion and Leader.

May 31.—Whitechurch Canonicorum and Lyme Regis. H. de Castro.

Geological Section.

Lectures and Meetings.

1938.
*Nov. 21.—Movements of the Earth's Crust. H. Bury.
Dec. 14.—Old Stone Implements. H. Bury.

1939.
*Jan. 16.—Caves and Caving in England and Wales. G. Platten.
*Feb. 18.—British Volcanos. J. F. N. Green.
*Mar. 13.—A Ramble Round Some S. African Mines. W. C. Simmons.

Excursions and their Leaders.

1939.
June 15.—Highcliffe and Barton. St. John Burton.
July 14.—Corfe, the Agglestone and Studland. H Bury.

Microscopical Section.

Lectures and Meetings.

1938.
Nov. 18.—Objects of Interest.
Dec. 16.— ,, ,,

1939.
Jan. 20.— ,, ,,
*Feb. 17.—The Structure of Crystals. Miss Penrose and M. McDougall.
Mar. 17.—Insect Anatomy. S. C. S. Brown.
Apr. 21.—Objects of Interest.
May 19.— ,, ,,
June 16.— ,, ,,
July 21.— ,, ,,
Aug. 18.— ,, ,,
Sept. 15.— ,, ,,
Oct. 20.— ,, ,,

Photographic Section.

Lectures and Meetings.

1938.
*Nov. 26.—S. David's Cathedral. S. Whitaker.

1939.
*Jan. 11.—Land of Eryre (Snowdonia). V. du B. Smythe.
*Feb. 4.—A Wayfarer in Norway. S. Beckett.
*Mar. 15.—In Old Tangier with a Camera. T. E. Waltham.
*Apr. 1.—Three Months in Portugal. R. C. Carter.
*Oct. 7.—Rambles on the N.E. Coast of England. S. Whitaker.

Excursion and Leader.

1939.
Aug. 17.—Mottisfont Abbey House. S. Whitaker.

Physical Section.

Lectures and Meetings.

1938.
*Dec. 6.—The Home Construction of a Gas-Proof Room. W. H. Marsh.

1939.
Jan. 12.—A.R.P. Fire Protection. W. H. Marsh.
Feb. 8.—A.R.P., The Views of a Practical Fireman. H. de Castro.
Feb. 22.—More A.R.P. Notes. B. Gorton.
*Mar. 20.—Heat and Electricity. M. C. Potter.

Zoological and Biological Section.

Lectures and Meetings.

1938.
Nov. 2.—Wild Mammals. B. Gorton.
Nov. 23.—Stinging Animals and Plants. H. Bury.
Dec. 19.—Plants in Relation to Insects. W. C. Simmons.
Dec. 31.—Sea Birds. F. L. Lowther.

1939.
*Jan. 21.—Plovers, Golden, Ringed and Others. G. Marples.
Jan. 30.—Appetite and Instinct. L. B. Hall.
*Feb. 13.—Insect Pests of Cultivated Plants. S. C. S. Brown.
Feb. 25.—Hair, Horn and Hoof. B. Gorton.
Mar. 1.—Notes on the Classification of Mammals. B. Gorton.
Mar. 27.—Modern Methods in Milk Production. H. de Castro.
Mar. 29.—Divers, Ducks and Waders. F. L. Lowther.
Apr. 29.—Hand and Foot. B. Gorton.
Sept. 30.—Colours of Animals (A Discussion).
*Oct. 14.—Shetland and its Bird Life. F. C. R. Jourdain.

Summary of the Accounts for the Year ending 30th September, 1939.

RECEIPTS.

	£	s.	d.
Current A/c.			
Members' Subscriptions	377	0	0
Donations to General Fund	1	17	0
Special Donation for Payment of Secretary ...	35	0	0
Rent from Tenants	135	0	0
Letting of Hall, etc.	50	0	0
Surplus of Excursions	33	7	1
Pennies for use of Telephone	1	6	6
Heat	0	7	11
Fees for Registration	0	5	0
	634	3	6
Balance from 1938	149	13	5
	£783	16	11

PAYMENTS.

	£	s.	d.	£	s.	d.
Interest on Debentures	151	13	0			
Less Tax	41	14	2			
				109	18	10
Income Tax under Schedule D ...				0	5	6
Corporation Duty				4	5	5
Maintenance of the Society's House :—						
Rates	80	5	10			
Property Tax	56	7	6			
Water	3	13	3			
Gas	12	13	10			
Electricity	7	15	3			
Coal and Coke	35	14	0			
Wages	77	9	9			
Insurances	20	0	3			
Telephone Charge	8	7	4			
Furnishing and Upkeep ...	6	2	5			
				308	9	5
Secretarial Expenses :—						
Printing and Stationery ...	31	15	6			
Postage	18	13	3			
Stamps	1	4	4			
Assistant Secretary	43	5	0			
				94	18	1
Maintenance of Garden :—						
Wages	22	1	7			
Other Expenses	2	6	0			
				24	7	7
Subscriptions to other Societies ...				3	2	6
Cost of Volume XXX of the Proceedings of the Society ...				27	17	6
Expenses of Library				5	10	2
Travelling Expenses				1	0	0
Sundry				0	1	0
				579	16	0
Balance carried forward ...				204	0	11
				£783	16	11

Deposit A/cs.

Debenture Fund.

	£ s. d.
Balance brought forward	39 11 1
Interest to 31st December, 1938	0 11 7
	£40 2 8

	£ s. d.
Balance on Deposit	40 2 8
	£40 2 8

Building Fund.

	£ s. d.
Balance brought forward	51 3 11
Interest to 31st December, 1938	0 15 3
	£51 19 2

	£ s. d.
Balance on Deposit	51 19 2
	£51 19 2

Archæological Research Fund.

	£ s. d.
Balance brought forward	8 15 1
Interest to 31st December, 1938	0 2 4
	£8 17 5

	£ s. d.
Balance on Deposit	8 17 5
	£8 17 5

Redemption Fund.

	£ s. d.
Balance brought forward	29 11 9
Interest to 31st December, 1938	0 4 9
	£29 16 6

	£ s. d.
Balance on Deposit	29 16 6
	£29 16 6

A. J. PARSONS.

September 30, 1939.

We have examined the above accounts with the books of the Society and the vouchers for payments and certify the same to be correct.

Bournemouth, 11th October, 1939.

FREDERIC BROAD } Hon.
JOHN C. WOODS } Auditors.

Financial Note

The balance carried forward again includes a sum of £35 given by a generous friend towards the payment of an Assistant Secretary during the coming year.

It will be observed that the balance carried forward is £54 7s. 6d. more than that for last year, due largely to increased surplus from Excursions, and less expenditure on Furnishing and Upkeep, and Postage.

FORM OF LEGACY.

The following FORM OF BEQUEST is recommended for adoption by those who may be desirous of leaving by Will money for promoting the objects and work of the Society :—

I give absolutely to the Treasurer for the time being of the Bournemouth Natural Science Society of No. 39 Christchurch Road, Bournemouth, for the general purposes of the Society the sum of £ s. d. free of duty, and I declare that the receipt of the said Treasurer for the time being shall be sufficient discharge for the said legacy.

Library Report.

The Library has been enriched by the gift of books, magazines and periodicals from a number of members too large to enumerate. Details of such acquisitions are posted from time to time in the Library for general information. Increased use of the Library has been obvious during the year, but further development in this direction may be confidently expected when all members realise the fact that, under certain restrictions, books may be borrowed and taken away for home use.

Museum Report.

Collections housed in the Museum form a heterogeneous assemblage, for the reason that most of them were gifts from many donors with widely differing tastes. On the whole those on show are mostly of local scientific interest, and this appears to be one of the most useful functions such a Museum should fulfil, namely, to display, or have readily accessible, collections which enable members not only to identify their own specimens, but also to keep up their investigations in the Natural History of our fascinating area, and it is the object of the officers to keep this in view. It is realised that there is still a great deal of work to be done in properly arranging the collections of birds, birds' eggs, butterflies and moths, local fossils, minerals and rocks, shells, and the rest, so that a proper classification is followed.

The Herbarium has been kept by the botanical section in good order, and this is a case of a most useful collection meant to help members to run down any plant by comparison with the dried specimens.

The Dent Collection of Barton Clay fossils has been renamed in accordance with modern nomenclature and the Society is grateful to Mr. E. St. J. Burton for undertaking this labour.

The rather complicated question of the character and action of polarised light has been illustrated by a large cleavage fragment of Iceland Spar (Calcite), which was presented by Dr. Crallan, and has been displayed prominently in one of the showcases. Dr. Crallan has further added to our great indebtedness to him by presenting a valuable series of minerals and rock specimens and also a fine lot of polished specimens to illustrate the different types of European ornamental stones and marbles. Among other collections he has given to the museum is a splendid cabinet of exotic butterflies.

Since the present honorary curator took over, a good deal of work has been done in trying to preserve the collections properly, and particularly the stuffed birds have needed attention, but many in the lecture room are not in glass cases, and deterioration is only too noticeable among them.

In common with so many scientific institutions, our activities now are very much curtailed by the war, and it will, obviously, not be possible to do much till peace comes.

Report of the Zoological Section.

Observations on Birds in the Bournemouth District from October, 1938 to October, 1939.

By the Rev. F. C. R. Jourdain, m.a., m.b.o.u., f.z.s., etc.

In the following notes, in order to avoid needless duplication of records, it is proposed to confine the present report to occurrences which have taken place within a radius of about 12 miles from Bournemouth, including Poole and Christchurch Harbours, the east coast of the Isle of Purbeck to St. Aldhelm's Head, and the western part of the New Forest. This necessarily includes parts of both Hants and Dorset.

1938.

The closing weeks of December, 1938, were remarkable for the short spell of bitter cold, which froze up the open waters of the Zuyder Zee in Holland, and caused great numbers of wild Swans and Ducks which normally winter there to migrate to our south-west coast in search of milder weather. With us the cold weather set in on the 17th-18th December and snow fell on the night of the 20th. On the coast it was not heavy, but inland was quite deep in places and the ground was white up to about 27th December, even quite close to the sea. Christchurch Harbour, where not frozen over, was a wonderful sight on the 20th and to the 25th, and for the first time for over 50 years we had a short visit from a herd of Bewick's Swans. Perhaps even more remarkable was the vast migratory movement of land birds along the coast westward. Most of these were Skylarks, but Fieldfares, Redwings, Bramblings and other species were also present in numbers, and Lapwings, which had been moving south in great numbers about mid-November, joined in the great migratory stream.

In the following notes those relating to Dorset are marked [D].

Chough, *Pyrrhocorax p. pyrrhocorax*. There have been various reports from different sources during the last few years of this species having been seen on the E. Dorset coast. Mr. P. W. Boughton-Leigh had an excellent view of a single bird while on the cliffs between St. Aldhelm's Head and Lulworth during the late summer of 1938. It is curious that this species, which has been steadily on the down grade for the

last half century, should quite unexpectedly have increased its range of late, and re-colonized many of its old haunts. This is a species which is not shot by gamekeepers, and very few eggs have been taken in Great Britain, but the real cause of its diminution, especially in Wales, is the heavy toll of life caused by setting rabbit traps in their haunts, and the slump in the price of rabbits saved the bird by making trapping unremunerative. We hope that the war will not have the opposite effect! [D]

Golden Oriole, *Oriolus o. oriolus*. Miss C. J. Rush saw a male in the Bloxworth woods, Dorset, on June 19, and was able to note that the wings were black and head and mantle golden yellow, so that there could have been no confusion with the Green Woodpecker. [D]

Crossbill, *Loxia c. curvirostra*. One (in green plumage) at the bird table, Canford Cliffs (WS). [D]

Brambling, *Fringilla montifringilla*. Huge flocks, not less than 1,000 passing along the coast at Bournemouth on Dec. 22 (FJ, W. H. Garrod).

Skylark, *Alauda arvensis*. The astonishing migration of this species was noted in Middlesex, Kent, Sussex and E. Hants, as well as with us, and many of the birds must have come from the Continent. Where cabbages stood out amid the snow these refugees descended on them in swarms and rapidly reduced the leaves to mere skeletons. Where the hearts were not touched, as was often the case, the plants, though mere wrecks, recovered in a surprising way (FJ).

Fieldfare, *Turdus pilaris*. A great irruption was noted in the Avon valley near Harbridge about mid-November, 300 at Farley Nov. 28 (BR), and later many were present during the westward rush in December, as well as Redwings, *T. musicus* (FJ).

Black Redstart, *Phœnicurus o. gibraltariensis*. A hen at Mudeford on Nov. 6 and a male at the same place, Dec. 3 (CP). A pair frequented a field near Ringwood through the whole of November (CB).

Spoonbill, *Platalea leucorodia*. Five at Poole Harbour on Dec. 25 (G. R. Peck). [D]

Bittern, *Botaurus s. stellaris*. One seen above Efford Bridge, West of Lymington and approached within 10 yards, Dec. 25 (R. M. Milne).

Bewick's Swan, *Cygnus b. bewickii*. A herd of about 20 swans (sp?) seen in flight, Southbourne, Dec. 25 (KH); 26 Bewick's Swans in Christchurch Harbour on afternoon of Dec. 25 (probably the same birds); none next day when many gunners about (CP). Apparently the last recorded visit of this species was in 1885.

Brent Goose, *Branta bernicla.* Four (probably light-breasted) in Christchurch Harbour, Dec. 18—25 (CP).

Mallard, *Anas p. platyrhyncha.* Quite 100 present, Christchurch Harbour, Dec. 20 (CP).

Pintail, *Anas a. acuta.* Four at same place, Dec. 18 (CP).

Wigeon, *Anas penelope.* Nine at same place on Nov. 17; about 50 on Dec. 18 (CP).

Pochard, *Aythya ferina.* Twenty-four in Poole Park, Nov. 24 (TB). [D]

Tufted Duck, *A. fuligula.* Two, Poole Park, Nov. 24 (TB). [D]

Long-tailed Duck, *Clangula hyemalis.* Two on Avon Beach, Dec. 20 and 25 (CP).

Red-breasted Merganser, *Mergus serrator.* One on Avon Beach, Dec. 20 (CP).

Red-throated Diver. *Colymbus stellatus.* One, Avon Beach, Nov. 14 (CP).

Black-necked Grebe, *Podiceps n. nigricollis.* Two, Christchurch Harbour, Dec. 19 (CP).

Lapwing, *Vanellus vanellus.* There was a great migratory movement down the Avon valley; about Nov. 14 great numbers reached Harbridge (BR) and a day later at least 1,000 passed down the lower reaches of the river to Christchurch (CP). Many also joined in the westward migration of Dec. 22 (FJ).

Grey Plover, *Squatarola squatarola.* One, Christchurch Harbour, Nov. 17 (CP).

Turnstone, *Arenaria interpres.* One, Avon Beach, Dec. 20 (CP).

Sanderling, *Crocethia alba.* Several, Mudeford, Dec. 10—24 (CP).

Knot, *Calidris canutus.* Two, Avon Beach, Dec. 20 (CP).

Black-tailed Godwit, *Limosa limosa.* Two, Stanpit, Dec. 20 (CP).

Bar-tailed Godwit, *L. lapponica.* Two on shore, Poole Harbour, Dec. 6 (TB); 30 same place, Dec. 31 (ET). [D]

Woodcock, *Scolopax rusticola.* One, Stanpit, Dec. 25 (FJ); 26 (CP).

Great Black-backed Gull, *Larus marinus.* Fifty in Christchurch Harbour, Dec. 4 (CP).

1939.

Among the more interesting items in this year's record we may mention an instance of the wintering of the Quail in the Bournemouth area and the occurrence of a young Cuckoo, pure white, without a trace of colour.

Nuthatch, *Sitta e. affinis*. Although common enough in the Avon valley, one does not often meet with this species in the town of Bournemouth; one at Southbourne, Sept. 5 (FJ).

Marsh and Willow-Tits, *Parus p. dresseri* and *P. a. kleinschmidti*. While the Coal-Tit is the commonest of the small Tits in the Bournemouth area, its place is taken in the New Forest by the Marsh-Tit, which is exceedingly common in some parts, especially near Burley (CMP). On the other hand the Willow-Tit is quite scarce, so it was with some surprise that we received a report (from BR) that a Tit had bored a circular hole into an upright stump in his garden at Farley and was evidently nesting there. The site was watched and the bird seen and heard also by Mr. Dilke. In the same garden there were also two nests of Marsh-Tit, so that it was an unusual opportunity to compare the notes and nests of the two species. The Marsh-Tits both bred in nesting boxes and all three birds hatched off successfully. On June 17 we examined the hole of the Willow-Tit, which had been opened out, and consisted of a retort-shaped chamber and opening, cut out in surprisingly hard wood, and still contained three infertile eggs, and a slight nest of rabbit fleck, fibre, and a few chips, but no moss. The nearer Marsh-Tit's nest had 8 young on May 8 and was a typical Tit's nest, very neatly built of moss with a cup of felted hair, contrasting strikingly with the flimsy nest and laboriously excavated hole of the Willow-Tit (BR, MCD, FJ).

Pied Flycatcher, *Muscicapa h. hypoleuca*. This is a sufficiently scarce passage migrant to deserve special mention; a male at Mudeford, April 21 (CP).

Fieldfares, *Turdus pilaris*. Present in unusual numbers after the cold spell; Jan. 30, about 100 at Farley; Feb. 14, quite 500 there (BR).

Swallow, *Hirundo r. rustica*. During the drought a pair of Swallows laid in an old nest at Farley, but the eggs rolled out over the rim. Later, the rim was built up higher by the birds to avoid further mishap (BR).

Cuckoo, *Cuculus c. canorus*. A young bird, fully fledged and able to fly, was picked up on the road at Sway, being apparently unable or unwilling to feed itself. It was pure white. In spite of efforts to feed it, it died a few days later and is now in the British Museum (GM).

Brown Owl, *Strix a. sylvatica*. Two half-grown young rats picked up underneath a perching place of this species in Southbourne, Sept. 14 and 28, when the single young bird was still apparently being fed by its parents (FJ).

Buzzard, *Buteo b. buteo*. Reports from the New Forest show that the colony of this useful species is holding its own well (BR, FJ).

Hen-Harrier, *Circus cyaneus*. A Harrier, female or young male, seen in the Forest on June 6th, presumed from the date to be this species (GM).

Montagu's Harrier, *C. pygargus*. A male seen on St. Catherine's Hill, May 5th (CP). No reports of breeding received this year.

Spoonbill, *Platalea leucorodia*. We have received interesting information as to the presence of this species outside our area. One is however reported to have been seen flying over Stanpit Marsh on Sept. 30 (SK).

Whooper, *Cygnus cygnus*. Two reported in Poole Harbour were present from Jan. 9 to at least Jan. 13 (Dr. Coles). [D]

Gadwall, *Anas strepera*. Three (almost certainly this species), Stanpit, Sept. 10 (CP, FJ).

Pintail, *A. a. acuta*. About 70 in Poole Harbour, Jan 13 (Dr. Coles). [D]

Tufted Duck, *Aythya fuligula*. Three, Christchurch Harbour, Apr. 21 (CP).

Eider Duck, *Somateria m. mollissima*. A male off Poole Harbour, Jan. 12 (G. B. Gooch). [D]

Red-breasted Merganser, *Mergus serrator*. Eight off Canford Cliffs, Jan. 24 (RW); two still present on Feb. 22 (RW); and three on 27th and Apr. 5 (TB). [D]

Red-throated Diver, *Colymbus stellatus*. One, Christchurch Harbour, Feb. 5 (CP).

Great Crested Grebe, *Podiceps c. cristatus*. A good many off shore, Mudeford, early February (CP).

Slavonian Grebe, *P. auritus*. On March 26 one first noted on the Avon above Winkton, which stayed there for 23 days! and was last seen on April 17. First reported by Miss Dacombe; identified and watched subsequently (FJ).

Grey Plover, *Squatarola squatarola*. First noted, Christchurch, Oct. 4 (CP).

Sanderling, *Crocethia alba*. Eleven on lagoon, Avon Beach, April 6 (CP).

Greenshank, *Tringa nebularia*. On Stanpit Marsh, April 4 (CP).

Black-tailed Godwit, *Limosa limosa*. One, Poole Harbour, Sept. 23 (FP); one, same place, Oct. 24 (TB).

Bar-tailed Godwit, *Limosa lapponica*. Stanpit Marsh, May 3 (CP).

Woodcock, *Scolopax rusticola*. A nest near Ringwood with four eggs on June 26 (CB).

Lesser Tern, *Sterna a. albifrons*. Arrived as usual at Mudeford, but after a time left and did not breed here, which is hardly surprising considering the treatment they have been subjected to of late (CP). The other Hants colony is however flourishing.

Quail, *Coturnix c. coturnix*. On Feb. 1st a local man shot a bird at Wick which was brought to me and proved to be a hen Quail, in good condition : a most unexpected occurrence as normally they are in Africa at this time (FJ).

ARRIVAL OF MIGRANTS.

Tree-Pipit. April 4th, St. Catherine's Hill (CP) ; 20th, Harbridge (MR).

Yellow Wagtail. April 7th, Harbridge (MR) ; 9th, Stanpit (CP) ; Bournemouth (F).

White Wagtail. April 5th, Bournemouth (F) ; May 3rd, Stanpit (CP).

Spotted Flycatcher. May 17th, Bournemouth (F) ; 19th, Mudeford (CP) ; 20th, near Sway (TB) ; 22nd, Harbridge (MR).

Pied Flycatcher. April 21st, Mudeford (CP) : May 17th, Bournemouth (F).

Chiffchaff. March 25th, Hengistbury (CP) ; 29th, Bournemoutn (F) ; 31st, Southbourne (FJ) ; April 1st, Parkstone (MP) ; Harbridge (MR) ; Sandbanks (WWT) ; 5th, Canford Cliffs (TB).

Willow-Warbler. April 1st, Bournemouth (F) ; 4th, Harbridge (MR) ; 8th, Mudeford (CP), Burton (FJ) ; 10th, Rempstone (TB) ; 11th, Witchampton (MP).

Wood-Warbler. April 11th, Witchampton (MP) ; 21st, Harbridge (MR) ; May 8th, Mudeford (CP) ; 20th, near Sway (TB).

Grasshopper-Warbler. May 1st, Harbridge (MR) ; June 6th, Littlesea (TB).

Reed-Warbler. [?] April 16th, Bournemouth (F) ; May 6th, R. Avon (CP) ; 7th, Stanpit (FJ).

Sedge-Warbler. April 13th, Wimborne (TB) ; 14th, Stanpit (CP) ; 16th, Bournemouth (F) ; 17th, Harbridge (MR).

Garden-Warbler. April 21st, Harbridge (MR), Bournemouth (F) ; May 5th, Burton (CP) ; 20th, Sway (TB).

Blackcap. April 19th, N. New Forest (FJ); 20th, Harbridge (MR), Parkstone (TB); 23rd, Burley (FJ).

Whitethroat. April 9th, Bournemouth (F); 17th, Mudeford (CP); 19th, Harbridge (MR).

Lesser Whitethroat. April 21st, Mudeford (CP).

Wheatear. March 12th, Bournemouth (F); 30th, New Forest (CP); April 1st, Bournemouth (MP), Sandbanks (WWT).

Whinchat. April 26th, Bournemouth (F).

Redstart. April 3rd, Mudeford (CP); May 7th, Bournemouth (F).

Nightingale. April 14th, New Milton (F); 19th, Harbridge (MR); New Forest (FJ); 24th, Highcliffe (CP).

Swallow. April 2nd, Bournemouth (F); 5th, Harbridge (MR); 10th, Mudeford (CP); 11th, Bournemouth (MP); 14th, Rempstone; 21st, Poole (TB).

Martin. April 9th, Bournemouth (F); 14th, Throop (CP); 24th, Harbridge (MR); May 6th, Rempstone (TB).

Sand-Martin. April 4th, Avon Valley (CP); 7th, Bournemouth (F); 11th, Harbridge (MR).

Swift. May 6th, Rempstone (RTB); 7th, Mudeford (CP); 12th, Harbridge (MR); 13th, Bournemouth (F); 14th, Parkstone (TB).

Nightjar. April 7th, Bournemouth (F); June 6th, Rempstone (TB).

Cuckoo. April 10th, Mudeford (CP); 11th, Harbridge (MR); 13th, Kingston Lacy and reported Rempstone (TB); 19th, New Forest (FJ).

Turtle Dove. May 6th, Southbourne (FJ); 7th, New Milton (F); 15th, Harbridge (MR); 20th, near Sway (TB); 26th, Mudeford (CP).

Sandpiper. April 18th, Stanpit (CP); 23rd, Bournemouth (F).

Whimbrel. May 10th, Stanpit (CP); 15th, Wick (FJ); 19th, Poole (HP).

Lesser Tern. April 17th, Mudeford (CP); 26th, Bournemouth (F).

(No record received this season of arrival of Red-backed Shrike, Hobby or Common Tern.)

Abbreviations:—TB=T. E. Belcher; CB=C. J. Bellamy; F="The Field" newspaper; FJ=F. C. R. Jourdain; SK=Miss S. K. Knight; CMP=C. W. Mackworth Praed; GM=G. Marples;

FP and MP=Miss F. and Miss M. Penrose; CP=Miss C. Popham; HP=H. L. Popham; BR and MR=B. J. and Mrs. Ringrose; WS=W. C. Simmons; WT=W. W. Thompson; ET=Miss E. M. Trotter; RW=R. Watkin. Communications also included from P. W. Boughton Leigh, Dr. A. C. Coles, Miss Dacombe, M. C. Dilke, W. H. Garrod, G. B. Gooch, P. A. D. Hollom, Miss K. Hunkin, R. M. Milne, G. R. Peck, and Miss C. J. Rush.

ARACHNIDA.

Mr. T. E. Belcher sends the following communication :—

Atypus sulzeri A dead ♂ found on Studland Heath, May 11th, 1939. Previous specimens found in Dorset: ♂, living, Compton Avenue, Parkstone, Oct. 25th, 1916; and ♂, living, Bourne Valley, Parkstone, May 7th, 1926.

Presidential Address, 1939.

"Some Suggestions as to the Origin of Man"

By

W. G. Aitchison Robertson, M.D., D.Sc., D.Litt., F.R.C.P. & F.R.S.E., Barrister-at-law.

(A RÉSUMÉ).

The records of several ancient religions state that each particular one had its beginning in an original and particular pair of parents. If this were so then there must have been many pairs of original parents, and so mankind could not have arisen from a single pair as is currently believed.

Each ancient religion had a record which was confined to a particular race, and the pair of original parents were their very own. It might not be difficult to understand that races which geographically were closely situated, such as the Hebrews, Babylonians, Persians and even the Egyptians, might have believed in a common original parenthood. When we think, however, of far separated races, as Indians, Chinese, South Africans, etc., it is much more difficult to imagine that all of them sprang from a single pair of parents.

In the consideration of different religious beliefs, we are confining ourselves to historical periods—to written records, which for the most part take us back for a few thousand years at most, *e.g.*, Babylonia 8,000 years, Egypt 7—8,000 years, India 1,000—1,500 years B.C. Yet we know that these races existed for many thousand years before they acquired the ability to engrave on stone or to write. The accounts which they give of their origin are mere traditional beliefs.

Let us go back much further, and inquire into our remote ancestry of many hundreds of thousands or even, as some authorities assert, millions of years.

The testimony of the rocks not only tells us of the antiquity of man, but reveals also how he has gradually progressed from an almost animal phase to what we are now.

It has to be remembered that in early geological times the barriers of space alone were so great that there could have been little or no inter-communication; vast deserts, lofty mountain ranges, immense oceans, wild animals, these all would have kept the different races of mankind to their own areas, even if we suppose that they existed at the same time; but in reality the vast differences in geological time separated them far more effectually.

Then again, before a new race could arise in a certain area, there must have been a suitable climate, plenty of food, environmental conditions favourable to life, growth and reproduction. Once these factors were present, a new race might be able to live and survive through great climatic and terrestrial changes, as happened during the glacial and inter-glacial periods.

The skull is the most important part of our body and fortunately many fossil specimens have been found. Scientists who have studied these carefully have shown that in the far distant past races of men existed who differed greatly from each other and from ourselves, and that these folks were widely separated both in time and space from one another.

The Piltdown skull (found in Sussex) belonged to the most primitive man yet discovered, and lay in the rocks of the early pleistocene period; the brain was nearly as large as that of present-day man, the frontal region was large, but the lower jaw was ape-like.

In the Island of Java another very primitive skull was found lying in the early pleistocene rock; the brain was only some 900 c.c. and the skull was long, flat and narrow (Pithecanthropus).

Then in China the "Pekin man's" skull was found. Here again it belonged to a very early type of man, possessing prominent eyebrow ridges and low forehead, the brain was also small and the whole skull was ape-like.

Perhaps the best known type of skull belonged to Neanderthal man, who lived many thousand years after the preceding, *i.e.*, about the mid-pleistocene period, and continued to exist through the last ice-age. He had a receding chin and enormous eye-brow ridges and a brain larger than our own. Though he possessed many ape-like characteristics his mental abilities were far in advance of the preceding types. He lived over a wide area, comprising most of what is now called Europe.

In the late pleistocene period another type of man appeared (Cromagnan), tall, handsome and intellectual. His brain also was large, and he continued to live until the commencement of the Neolithic age. Neolithic Man or present-day man appeared some 20,000 years ago, and has been sub-divided into various races, as Mediterranean, Alpine, Nordic.

In the same way the Jew, the African Negro, the Mongolian has preserved his characteristic features during perhaps tens of thousands of years. All these different races of man, separated in some cases by half the circumference of the globe, and still more so by tens or hundreds of thousands of years, remained distinct and separate; each race retained its individual character through countless ages; there is no evidence of any merging from one race to another.

Yet, according to the almost universal belief, all these different races of man sprang from one original pair of parents.

For myself I cannot believe this for a moment. I believe that the Piltdown race had its origin in or near our own land,

the Javanese race in the far East, the Pekin race in China, Neanderthal man in Europe or Northern Africa, the Bushman in South Africa and so on. Each had its own original pair of parents.

It is impossible to believe that these very early races merged gradually into more advanced forms. The skull of Neanderthal man is the same in his earliest as in his latest appearance, an interval including many tens of thousands of years.

It seems to me much more reasonable to believe that each of these types had its own original pair of parents. As the ages passed on, each type showed features in advance of the preceding races, until at last present day or neolithic man appeared.

The early evolutionists thought that man had advanced through an infinitely slow progression from his first appearance on earth. Yet they were unable to furnish any proofs for this belief. On the contrary, each genus has remained the same through the tens of thousands of years of its existence.

Primitive man, who lived contemporaneously with the mammoth and woolly rhinoceros, was anatomically the same as present day man, though a vast distance of time separates them from us. There is absolutely no evidence that one race of men gradually acquired the characteristics of another race.

Is it not far more reasonable to believe that all these different races of man, instead of having sprung from a single pair of parents at a time so remote that there is an impossibility of arriving even at a conjecture of its length, arose in lands far distant from one another, and at far removed epochs of time? These special parents gave rise to new races of men, each more advanced than the preceding.

This theory does not only apply to prehistoric man, but to much later times as well, and the black, yellow and white races had, in my opinion, each an original pair of parents.

How otherwise could one account for the dark colour and facial peculiarities of the African negro, the yellow colour and flat face of the Mongolian, and so on? The individual peculiarities of each have remained unchanged through many thousands of years.

Having stated this theory as to the multiplicity of original parents, have I any idea as to how they arose? I think that I have.

It is only within the last forty years that attention has been given to the development of the embryo, and it is my opinion that Embryology furnishes a new theory to account for evolution.

As a result of fertilization, the ovum immediately commences to subdivide along with the nucleus which it contains. This is not a mere slicing of each cell into two. The division is preceded by a highly complicated process in the nucleus. The latter contains many coloured granules called chromozomes. These having undergone a complicated arrangement finally separate,

half going to each part of the divided cell. Each of these cells possesses part of the original male and female gene, and this gives us a partial explanation of the laws of heredity.

If this process of development goes on harmoniously, at last a new creature is originated differing in no way from its parents. If on the contrary this harmonious subdivision of cells is interfered with, there is disorder in the embryological development. This may give rise to malformations in the fully developed offspring and these may be even so great as to produce monstrosities.

The artificial incubation of hen's eggs may be taken as an example. Unless care is exercised in turning the eggs regularly towards the source of heat, evil results may follow. Thus one side of the egg may become overheated, and so the chicks, when they emerge from their shells, have one side of their bodies larger than the other—they are asymmetrical and this was brought about by overheating of the chromozomes in the nuclei of one side of the body. Other evil results may follow if the eggs are kept too cold, where there has been lack of oxygen or when they have been exposed to certain poisonous vapours.

In the same way, if the water in which the eggs of frogs or newts are developing be changed ever so slightly, evil results follow. Thus the slightest excess of common salt in the water causes all the tadpoles to develop a double spinal column, while if the merest trace of magnesium chloride be added to the water, the frogs develop into cyclopean monsters, there being one centrally placed eye instead of the normal two.

Again, evil effects follow the exposure of fertilized eggs to irradiation with gamma rays, radium, etc., or to change of climate, excessive shaking and such like.

The eggs of certain creatures are so large that a mechanical disarrangement or a re-arrangement of the sub-dividing cells may be made experimentally by the embryologist; thus in the case of amphioxus or lancelet, if the eggs are displaced, a double monster is often the result.

In the case of the human being, if normal development takes place, the child is born differing no whit from its parents. If, however, there has been an arrest in the sub-division of certain groups of cells, the child may be born without hands or arms and even the head may be wanting. On the other hand, where cell-division has been over-energetic, we may meet with hypertrophies of certain parts of the child's body.

These are examples of obvious anatomical defects. There are others, however, which affect the nervous system; thus the child may be a congenital idiot, though both parents may be talented individuals. Again, it may develop into an infant prodigy, playing and composing sonatas during early childhood, or it may become a "lightning calculator," and so on, while the parents are plain, ordinary folk; short unattractive parents may have tall and attractive children.

The actual form of the fully developed creature depends on

(1) inherited influences and (2) on external influences. We cannot as a rule interfere with the first except by selecting the parents, as is so often done in animal breeding.

I have shown, however, that external influences may exert marked action in the embryo, and such may be the result of the various agents a few of which I have indicated. One must also remember the intense action which the secretions of the ductless glands (hormones) exert on the growing embryo. If such changes brought about were favourable to the survival of the fittest, they would be continued through the succeeding generations, and become part and parcel of the inheritance.

The study of animal genetics has thrown much light on evolution. For example, the crossing of two different strains of animals may give origin to a new race, far exceeding the parents in size, vigour, resistance to disease, etc. If such changes can be brought about experimentally by man in the laboratory, how much more easily could it be done by Nature!

Suppose some such change took place in the fertilized germ cell of a Neanderthal woman. The infant when born might have lost many of the simian characters of its parents. If two such creatures mated, then if the transmission of acquired characters be true, and if the changes were favourable to the race, their progeny would be like themselves, and so a new race of man would arise. The original Neanderthal race would gradually die out, being replaced by a new one superior to it. Such a change might occur but once in many thousands of years, but the emergent race would in a relatively short time supplant the less efficient one. The new race had its origin in a new pair of original parents.

Instead, therefore, of the infinitely slow progress which evolutionary changes were thought to require by the older anthropologists (and which have never been shown to be true), it is now seen how that under certain conditions, some of which I have indicated, an evolutionary change might take place almost at once. And this is my belief.

In ways that we know not of, but by some alteration in the genesis of our early forefathers, the Bushman of South Africa, the man of Sussex, of Java, of China and many others originated, dwelt on the earth for a certain long period, were replaced by more efficient races, and disappeared. It is in such a way that all the different races arose, each with its special pair of original parents, possibly special creations; but how great were the results of such! But is not every child born into our world specially created by the Almighty? If you have any doubts, ask the mother.

HEAT AND ELECTRICITY.

Synopsis of a Lecture by

The Rev. M. C. Potter, Sc.D., M.A.,

Emeritus Professor of the University of Durham.

20th March, 1939.

The production of both heat and electricity by friction is well known, the former by primitive man in the making of fire and the latter elaborated by Dr. Gilbert.

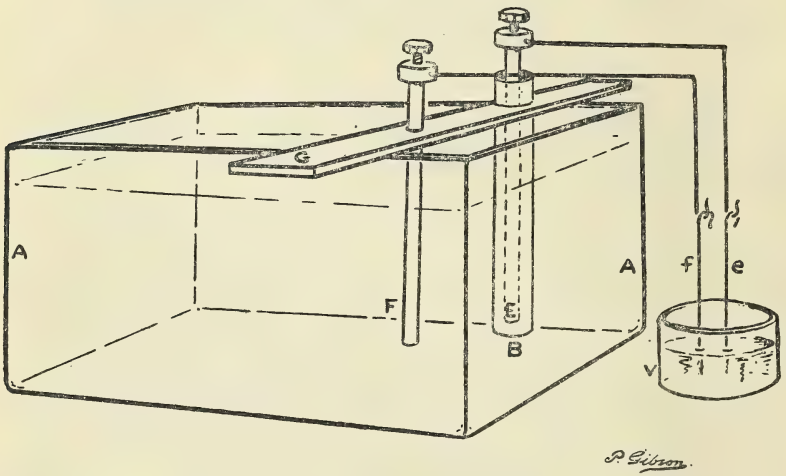
The bounding surface of any material will be made up of an arrangement of molecules which in certain cases may be a monolayer. It may be presumed that the dimensions of various molecules are comparable, so that at an interphase between two substances the molecules come into mutual contact with a kind of interlocking. When at rest an equilibrium, as regards both heat and electricity, will be maintained at an interphase in the absence of any disruption of the molecules due to the motion of one substance against the other or to a chemical action between them. When, however, such a disruption takes place then simultaneously both electricity and heat are liberated. The term tribo-electricity has been used by Prof. Shaw (*Phil. Mag. Vol.* 9, 1930; *Proc. Roy. Soc., A. Vol.* 3, 1926-8) to denote this electricity, and the term tribo-heat may be applied to the heat so produced. This proposition it may be said holds for the mutual contact between solids, liquids and gases.

The simultaneous production of tribo-electricity and tribo-heat was first observed by Pictet (*Essais de Physique, Experiences sur la chaleur produite par le frottement, Ch. IX; Geneva,* 1790), who noted the intimate relationship between heat and electricity when these were simultaneously produced during friction.

Count Rumford (*Phil. Trans.,* 1798), in his experiments on boring cannon, considered only the tribo-heat, as he makes no mention of the simultaneous production of tribo-electricity or of any investigations to discover its presence. Joule (*Collected Scientific Papers,* 1884) and his fellow workers adopted the same course, so that the whole of the work expended was considered to be converted into heat. Lord Kelvin (*Proc. Roy. Soc. Vol.* 57, 1895) showed the existence of electricity when the surface of a solid and a liquid (water) moved against each other. Further researches upon this phenomenon are given by Sir J. J. and G. P. Thomson in their book, "Conduction of Electricity through Gases," but in the researches cited the simultaneous production

of heat and electricity is not mentioned. It would appear from the existence of electricity near waterfalls and from the beating of waves on the shore that the impact of rain upon the ground and parts of plants gives rise to electricity, a possible factor in meteorology.

Instances of the simultaneous liberation of both electricity and heat are provided by some experiments representing a special type of voltaic cell, described as follows. Thus AA a container



of glass or earthenware having a high electrical resistance and partially filled with water. B a Leclanché porous pot or a porous pot containing water from the same source as that in AA. E and F two similar carbon electrodes; copper leads are attached to these electrodes, from which thin copper wires e and f are arranged to dip into a solution of copper sulphate in the vessel V. If such a piece of apparatus is left undisturbed (as a control) for some hours an examination of the wires e and f would show, by the absence of any electro deposit of copper upon them, that no electric current had passed through the cell. (1) When a piece of metal lying upon the bottom of AA is drilled with an insulated drill; or (2) the water in AA is stirred with a glass or ebonite rod or with an insulated metal stirrer; or (3) a stream of water is caused to flow over pieces of broken glass placed in AA; then in sympathy with the work performed in any of these cases an electric current flows through the apparatus and is indicated by an electro deposit of copper upon the wire f. It will be readily recognised that the tribo-electricity so liberated is proportional to the work expended in each of these cases. At the same time the temperature of the water in AA is raised. These experiments show that electricity and heat are simultaneously liberated when a liquid and a solid are moved one against the other, and that a

definite relationship exists between the coulombs and the calories which are liberated by a definite amount of work.

(1) Virtually the design of Rumford who investigated the heat but makes no mention of the electricity. The experiment (1) shows that electricity would be liberated as long as molecular disruption was caused by the action of the drill. Rumford showed that heat would be liberated whether the molecular disruption took place in a gas or under a liquid (water).

(2) The design adopted by Joule, who showed that heat was liberated when a solid (metal) was moved against a liquid (water) but he makes no mention of the electricity which this experiment shows would be liberated under the conditions of his experiments.

(3) Shows that electricity would be liberated in those methods for the determination of the mechanical equivalent of heat (J) in which the continuous flow is adopted.

It will be noted that these experiments are based upon those designed for the determination of J. There is, however, this important difference. In the determinations of J a metal calorimeter was employed without any mention of insulation, whereas in the experiments described precautions were taken to minimise any leakage of electricity.

Objections to the interpretation of these experiments have been raised upon purely theoretical grounds unsupported by actual experiments. (a) That the current might be due to differences in the electrodes is answered by the efficient controls. (b) The objection that any electricity would appear as heat is negatived by ordinary experience; thus if a piece of cloth is rubbed with ebonite its temperature is raised, as shown by a thermometer, simultaneously with its electrification. If the cloth be allowed to cool to its former temperature it will be found to remain charged. Also if a piece of metal is rubbed the increase of its temperature is the same whether the metal is insulated or earthed. The conception that in Joule's experiments with metal calorimeter and vanes any electricity would become heat and be reckoned as such, is negatived by these experiments and by the electrification near waterfalls, etc. In Joule's experiments it may be presumed that the electricity would pass to the exterior of the calorimeter and then, in the absence of insulation, to earth. The supposition that the tribo-electricity liberated in the experiments of Joule and his fellow workers would appear as heat may be said to be devoid of experimental support. (c) The objection that opposite electricities would recombine is met by the well known phenomena of dissociation and ionization, as well as by Armstrong's hydro-electric machine and the experiments of Kelvin and by the literature cited by Sir J. J. and G. P. Thomson.

In the electrical methods for the determination of J advantage has been taken of the property of a battery current to heat a wire

along which it passes. But, as in the instances cited above, the creation of an electric field around the wire, when immersed in water, has passed unnoticed by Joule, Griffiths (*Phil. Trans. A,* 1893 *and Proc.* 1894), Callendar and Barnes (*Phil, Trans. A, vol.* 199), and others. It is thus seen that the work of the battery is divided into (at least) two portions, one producing heat and the other giving rise to the electric field. It will be readily granted that these two portions of the work of the battery bear a constant relationship to each other and to the efficiency of the battery. Thus the occasion would not arise when a battery would produce more heat and a less electrical field or vice versa.

If a thin wire with its ends connected to a battery is immersed in the water in AA the water is heated and an electric field is created in the water around the wire. The rise of temperature of the water has been measured and found to agree with the determinations of J by the direct methods. The electric field can be noted by the gradual accumulation of copper upon the wire f which takes place continuously as long as the battery circuit is closed. It has been objected that this electric field, formed in a fraction of a second, would remain static and would be without influence in the determinations of J; but this objection is not in agreement with the experimental evidence which shows that a copper deposit accumulates as long as the battery is in action. The experimental evidence now put forward shows that a very definite portion of the battery, by no means negligible, is converted into the electric field, and that this experiment is in complete agreement with those previously described.

Chemical experiments show that heat is liberated during the disruption of the molecules of reacting substances (exothermic reactions), but the simultaneous liberation of electrons (exo electric) is not always mentioned.

The apparatus described, with unattackable electrodes, may be used as a fermentation cell. The author has shown that if a solution of cane sugar to which a little yeast is added is placed in AA, then in sympathy with the fermentation (glycolysis) an electric current passes through the apparatus (*Proc. Roy. Soc., B, Vol.* 84, 1911), affording an example of an exo electric and exothermic reaction. This result has been found to hold for a variety of organic and inorganic reactions such as the inversion of cane sugar, the hydrolysis of starch, the action of acid and base, neutralisation, the reaction of acid and metal, and the decomposition of organic matter by micro-organisms (*Zent f. Bakt. etc. Abt.* 2, *Bd.* 78, 1929; *Bd.* 84, 1931; *Bd.* 93, 1935). Hence it may be inferred that down-grade chemical reactions give rise to heat and electricity.

If two reactants A and B give rise to C and D then

$$A + B = C + D + \text{heat} + \text{electricity}$$

Experiments so far show that approximately 4 Coulombs are liberated during the glycolysis of one gram. mol. of sucrose.

It may be stated in general terms that as a consequence of molecular disruption the free energy of the reactants is liberated partly as heat and partly as electricity.

Summary.

Experiments modelled upon those designed for the determination of J agree in showing that a definite portion of the work is converted into electricity.

During the disruption of molecules electricity and heat are simultaneously liberated and the experiments for the determination of J cannot be an exception to this rule.

The supposition that electricity would become heat is shown to be contrary to experimental evidence. If this were so, it may be asked, would there be frictional electrical machines?

Obituary Notice.

Richard Quick, F.S.A. (Scot.)

Mr. Quick served the Borough for 11 years as Curator of the Russell-Cotes Museum, where his series of Lectures, illustrated by objects in the Museum, achieved considerable popularity. On retiring from that post in 1932 he freely offered his services to our Society, and acted as Hon. Secretary until 1936, when failing health compelled him to give up work, which he had carried on with all the vigour and enthusiasm of which he was capable.

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INDEX.

	Page
Accounts, Summary of	28
Aims of the Society	5
Annual Meeting	20
Arachnida	39
Archæological Section—	
Excursions	24
Lectures and Meetings ...	24
A.R.P.	23
Astronomical Section—	
Lectures and Meetings ...	24
Auditors	8
Bankers	8
Bewick's Swans	32
Birds, Arrival of Migrant ...	37
,, Observations of	32
Botanical Section—	
Excursions	25
Lectures and Meetings ...	25
Chromozomes	42
Club Day	23
Committees, 1939-40	52
Council—	
Members of	7 51
Report of	22
Death, Losses by ...	22 50
Entomological Section—	
Lectures and Meetings ...	25
Excursions—	
General	24
Sectional	24-7
Geographical Section—	
Excursion	26
Lectures and Meetings ...	26
Geological Section—	
Excursions	26
Lectures and Meetings ...	26

	Page
Heat and Electricity (Paper on)	45
Lectures and Meetings—	
General	23
Sectional	24-7
Legacy, Form of	30
Library—	
Committee	52
Report	31
Members, List of	9
Microscopical Section—	
Lectures and Meetings ...	26
Museum—	
Committee	52
Report	31
Neanderthal Race	44
Neolithic Man	41
Obituary—R. Quick	50
Officers and Council, 1938-9 ...	7
,, ,, 1939-40 ...	51
Origin of Man	40
Paper on Heat and Electricity ...	45
Photographic and Record Section—	
Excursion	27
Lectures and Meetings ...	26
Physical Section—	
Lectures and Meetings ...	27
Presidential Address	40
Presidents	20
Quick, Richard	50
Rule 4, Addition to	20
Tribo-electricity	45
Zoological Section—	
Lectures and Meetings ...	27
Report of	32

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